

Curriculum Vitae

Talon E. Johnson

CONTACT INFORMATION	University of Texas at Arlington Postdoctoral Fellow Department of Mathematics University of Texas at Arlington P.O. Box 19408 Arlington, TX 76019-0408	Phone: (469) 765-7680 E-mail: talon.johnson@mavs.uta.edu
EDUCATION	University of Texas at Arlington , Arlington, TX B.S. to PhD in Mathematics Dissertation Title: “Compressive Deconvolution for MRI Imaging via $\ell_1 - \ell_2$ Regularization” Advisor: Dr. Jianzhong Su	Aug 2016 – Aug 2021 (GPA 3.6/4.0)
	Morehouse College , Atlanta, GA B.S. in Mathematics, Magna Cum Laude Senior Seminar Project: “Evolutionary Dynamics of HIV and AIDS” Advisor: Dr. Shelby Wilson	Aug 2012 – May 2016 (GPA 3.57/4.0)
EMPLOYMENT HISTORY	Postdoctoral Fellow , Department of Mathematics University of Texas at Arlington	Sep 2021 - Dec 2021
	Graduate Teaching Assistant , Department of Mathematics University of Texas at Arlington	Aug 2016 - May 2021
RESEARCH INTERESTS	Mathematical Biology Compressed Sensing in Medical Imaging Computational Neuroscience Machine Learning (actively learning)	
COMPUTATIONAL SKILLS	Programming and Scripting Languages: Matlab, Python, Netlogo, Microsoft Excel and \LaTeX	
FELLOWSHIPS, AWARDS AND GRANTS	NSF MPS Ascending Postdoctoral Fellowship , NSF Dissertation Fellowship , UT Arlington Outstanding Graduate Teaching Award , UT Arlington GAANN Peer Mentor Award , UT Arlington Math Alan Amaya Memorial Scholarship , UT Arlington Organization of the Year Award , UT Arlington GAANN Fellowship , UT Arlington	Jan 2022 (tentative) May 2021 - Aug 2021 Apr 2021 Aug 2020 Aug 2020 - May 2021 May 2019 Aug 2018 - May 2021

NSF Bridge to Math Doctorate Fellow , UT Arlington	Aug 2016 - May 2017
Michael B. and Wanda Ray Math Fellowship , UT Arlington	Aug 2016 - May 2017
Teaching Assistantship , UT Arlington	Aug 2016 - May 2021
Math Award in Advanced Linear Algebra , Morehouse College	Apr 2016
Math Award in Applied Mathematics , Morehouse College	Apr 2016
Pu Mu Epsilon Mathematics National Honor Society , Morehouse College	Sept 2015
JMM 2015 Award for Outstanding Presentation , AMS	Jan 2015
Math Award in Topology , Morehouse College	Apr 2015
Math Award in Abstract Algebra , Morehouse College	Apr 2015
MARC-USTAR Research Grant , Morehouse College	Aug 2014 - May 2016

TEACHING
EXPERIENCE

Graduate Teaching Assistant, Department of Mathematics
University of Texas at Arlington August 2016 - May 2021

- Math 1302: *College Algebra Instructor* (1 semester)
 - Math 1421: *Preparation for Calculus Instructor* (1 semester)
 - Math 1421: *Preparation for Calculus Lab Assistant* (5 semesters)
 - Math 1426: *Calculus I Instructor* (1 semester)
 - Math 1302: *College Algebra Instructor* (1 semester)
 - Math 2425: *Calculus II Lab Assistant* (2 semesters)
 - Math 3318: *Ordinary Differential Equations Specialized Tutor* (1 semester)
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RESEARCH
EXPERIENCE

Graduate Student Participant, *Workshop on Parameter Estimation for Biological Models*
North Carolina State University, Raleigh, NC July 2019 - Aug 2019

- Participated in a week long summer graduate workshop which included lectures on techniques and modeling using specific data sets, and daily computer activities focusing on learning techniques.
- Some technique covered included: machine learning, Bayesian approaches to inference, least squares, parameter estimation, model identifiability, parameter estimation, and uncertainty and sensitivity analysis.
- Presented current research question in a poster session.

Graduate Student Participant, *Joint MBI-NIMBioS-CAMBAM Summer Graduate Program*
University of Tennessee-Knoxville, Knoxville, TN Jun 2017

- Participated in a 10 day summer graduate workshop which included lectures on techniques and modeling using specific data sets, and daily computer activities focusing on learning techniques.
- Some technique covered included: maximum likelihood and Bayesian approaches to inference, parameter estimation, model identifiability, and uncertain and sensitivity analysis.
- Sessions to receive feedback on participants own research question.

Undergraduate Student Researcher, *National Institute for Mathematical Biology Synthesis (NIMBioS)*
University of Tennessee-Knoxville, Knoxville, TN Jun 2015 - Jul 2015

Research Advisors: Dr. Judy Day and Dr. Edmund Legrand

Research Title: Exploring Non-Specific Stressors in Host-Pathogen Interactions

- Research the nonspecific stressor of the innate immune system, such as fever and phagocytosis.
- Use the agent-based model program, Netlogo, to explore the interactions of host cells and invasive pathogen in relations to the innate immune system, while keeping the model biologically feasible.
- Build on the model by adding new parameters for host defenses, such as adding phagocytes or cell programmed death and adding new types of pathogens such as viruses.
- Do statistical analysis of the host survival rate when the pathogen invades with various parameters of both host and pathogen.

Undergraduate Student Researcher, *Maximizing Access to Research Careers (MARC) Undergraduate Student Training in Academic Research (U-STAR)* Aug 2014 - May 2016
Morehouse College, Atlanta, GA

Research Advisor: Dr. Shelby Wilson

Research Title: Evolutionary Dynamics of HIV and AIDS

- Research in the dynamics of the human immunodeficiency virus and host T-cells.
- Analyze a system of four differential equations, known as the Nowakian model, that describes the dynamics of HIV and T-cell populations and simulate results in Matlab.
- Build upon the Nowakian model to incorporate mutant HIV strains during infection of host T-cell and reproduction.
- Analyze system and simulate results in Matlab.

Summer Student Researcher, *Math Summer Program in Research and Learning* Jun 2013 - Jul 2013
University of Maryland at College Park, College Park, MD

Research Advisor: Dr. Leon Woodson

Research Title: Path Counting

- Research in combinatorics known as path counting.
- Count the number of paths to reach a point of the Cartesian plane from the origin given a set of vectors.
- Analyze the recurrence relations and create the generating functions to solve those relations.

SERVICE AND
COMMUNITY

Graduate Student Biomathematics Session Coordinator, *Women in Math Day Program* Nov 2019
University of Texas at Arlington, Arlington, TX

Summer Teacher, *ESTE²M Builders Educational Program* Jun 2019-Jul 2019

Breaking Down Barriers in STEM by Being the Agents of Change Conference Organizer, *The College of Science Back Graduate Student Association* Apr 2019
University of Texas at Arlington, Arlington, TX

Graduate Student Assistant and Mentor, *Research and Engineering Apprenticeship Program (REAP)*

University of Texas at Arlington, Arlington, TX

Jun 2017 - Jul 2018

Volunteer, Fort Worth Regional Science Fair
University of Texas at Arlington, Arlington, TX

Apr 2017

Volunteer, UT Arlington Calculus Bowl
University of Texas at Arlington, Arlington, TX

Mar 2017

PUBLICATIONS

- **Johnson, T.** *Compressive Deconvolution for MRI Imaging via $\ell_1 - \ell_2$ Regularization*. Ph.D. thesis. The University of Texas at Arlington, 2021.
- Song, Z., Baxter, M., Jin, M., Wang, J., Li, R., **Johnson, T.** and Su, J.(2018). *Sparse Sampling and Fully-3D Fast Total Variation Based Imaging Reconstruction for Chemical Shift Imaging in Magnetic Resonance Spectroscopy*: International Conference, BI 2018, Arlington, TX, USA, December 7-9, 2018, Proceedings. 10.1007/978-3-030-05587-5_45.
- **Johnson, T.**, Wilson, S. *Modeling Evolutionary Dynamics of Human Immunodeficiency Virus*. Proceedings of the Harriett J. Walton Symposium on Undergraduate Mathematics Research. Volume 14 (2016).

ORAL
PRESENTATIONS/
INVITED TALKS

- *Why Choose Math: My Mathematical Journey (Invited Talk)*, North Lake College Mar 2020
- *Sparse Sampling and Fully-3D Fast Total Variation Based Imaging Reconstruction for Chemical Shift Imaging in Magnetic Resonance Spectroscopy*, JMM, Denver Jan 2020
- *Sparse Sampling and Fully-3D Fast Total Variation Based Imaging Reconstruction for Chemical Shift Imaging in Magnetic Resonance Spectroscopy*, Brain Informatics Conference, UT Arlington Nov 2018
- *Evolutionary Dynamics of HIV and AIDS*, Walton Symposium, Morehouse College Apr 2016
- *Exploring Non-Specific Stressors in Host-Pathogen*, NIMBioS, UT Knoxville Jul 2015
- *Path Counting*, MATH SPIRAL, University of Maryland - College Park Jul 2013

POSTERS

- *Sparse Sampling and Fully-3D Fast Total Variation Based Imaging Reconstruction for Chemical Shift Imaging in Magnetic Resonance Spectroscopy*, Workshop on Parameter Estimation for Biological Models, North Carolina State University - Raleigh Jan 2020
 - *Sparse Sampling and Fully-3D Fast Total Variation Based Imaging Reconstruction for Chemical Shift Imaging in Magnetic Resonance Spectroscopy*, Breaking Barriers in STEM Conference, UT Arlington Apr 2019
 - *Evolutionary Dynamics of HIV and AIDS*, JMM 2016 Jan 2016
 - *Exploring Non-Specific Stressors in Host-Pathogen Interactions*, ABRCAMS Nov 2015
 - *A Bio-mathematical Approach to HIV and AIDS Stability*, JMM 2015 Jan 2015
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ORGANIZATIONS

Phi Mu Epsilon

American Mathematical Society (AMS)

Mathematical Association of America (MAA)

College of Sciences Black Graduate Student Association (COSBGSA)

Gulf States Math Alliance